

TM3TI4D

Analog input module, Modicon TM3, 4 temperature differential inputs (screw) 24 VDC



Main

Range of Product	Modicon TM3
Product or Component Type	Analog input module
Range Compatibility	Modicon M221 Modicon M241 Modicon M251 Modicon M262
Analogue input number	4
Analogue input type	Thermocouple - 200...1000 °C thermocouple J Thermocouple - 200...1300 °C thermocouple K Thermocouple 0...1760 °C thermocouple R Thermocouple 0...1760 °C thermocouple S Thermocouple 0...1820 °C thermocouple B Thermocouple - 200...400 °C thermocouple T Thermocouple - 200...1300 °C thermocouple N Thermocouple - 200...800 °C thermocouple E Thermocouple 0...2315 °C thermocouple C

Complementary

Analogue input resolution	16 bits 15 bits + sign
Permissible continuous overload	13 V voltage 40 mA current
Input impedance	>= 1 MOhm thermocouple
LSB value	0.1 °C thermocouple
Conversion time	100 ms + 100 ms per channel + 1 controller cycle time thermocouple
Sampling duration	100 ms thermocouple
Absolute accuracy error	+/- 0.2 % of full scale 77 °F (25 °C) thermocouple C 0...2315 °C +/- 6 °C 77 °F (25 °C) thermocouple R, S 200...1760 °C +/- 0.2 % of full scale 77 °F (25 °C) thermocouple R, S 200...1760 °C +/- 0.2 % of full scale 77 °F (25 °C) thermocouple B 300...1820 °C +/- 0.4 % of full scale 77 °F (25 °C) thermocouple K - 200...0 °C +/- 0.2 % of full scale 77 °F (25 °C) thermocouple K 0...1300 °C +/- 0.4 % of full scale 77 °F (25 °C) thermocouple J - 200...0 °C +/- 0.2 % of full scale 77 °F (25 °C) thermocouple J 0...1000 °C +/- 0.4 % of full scale 77 °F (25 °C) thermocouple E - 200...0 °C +/- 0.2 % of full scale 77 °F (25 °C) thermocouple E 0...800 °C +/- 0.4 % of full scale 77 °F (25 °C) thermocouple T - 200...0 °C +/- 0.2 % of full scale 77 °F (25 °C) thermocouple T 0...400 °C +/- 0.4 % of full scale 77 °F (25 °C) thermocouple N - 200...0 °C +/- 0.2 % of full scale 77 °F (25 °C) thermocouple N 0...1300 °C
Temperature Drift	+/- 0.01 %FS/°C
Repeat accuracy	+/-0.5 %FS
Non-linearity	+/- 0.2 %FS
Cross talk	<= 1 LSB
[Us] rated supply voltage	24 V DC
Supply voltage limits	20.4...28.8 V
Type of cable	Twisted shielded pairs cable <98.43 ft (30 m) input
Current consumption	45 mA 5 V DC via bus connector 50 mA 5 V DC via bus connector 35 mA 24 V DC via external supply 40 mA 24 V DC via external supply
Local signalling	For PWR 1 LED (green)
Electrical connection	10 x 1.5 mm ² removable screw terminal block pitch 3.81 mm for inputs and supply 10 x 1.5 mm ² removable screw terminal block pitch 3.81 mm for inputs

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Insulation	Between input and supply 1500 V AC Between input and internal logic 500 V AC
Marking	CE
Surge withstand	1 kV power supply common mode EN/IEC 61000-4-5 0.5 kV power supply differential mode EN/IEC 61000-4-5 1 kV input common mode EN/IEC 61000-4-5
Mounting support	Top hat type TH35-15 rail IEC 60715 Top hat type TH35-7.5 rail IEC 60715 Plate or panel with fixing kit
Height	3.54 in (90 mm)
Depth	2.76 in (70 mm)
Width	0.93 in (23.6 mm)
Net Weight	0.24 lb(US) (0.11 kg)

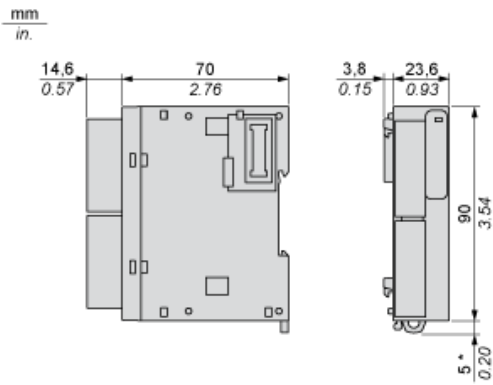
Environment

Standards	EN/IEC 61131-2 EN/IEC 61010-2-201
Resistance to electrostatic discharge	8 kV in air EN/IEC 61000-4-2 4 kV on contact EN/IEC 61000-4-2
Resistance to electromagnetic fields	9.14 V/m (10 V/m) 80 MHz...1 GHz EN/IEC 61000-4-3 2.74 V/m (3 V/m) 1.4 GHz...2 GHz EN/IEC 61000-4-3 0.91 V/m (1 V/m) 2 GHz...3 GHz EN/IEC 61000-4-3
Resistance to fast transients	1 kV EN/IEC 61000-4-4 I/O)
Resistance to conducted disturbances	10 V 0.15...80 MHz EN/IEC 61000-4-6 3 V spot frequency (2, 3, 4, 6.2, 8.2, 12.6, 16.5, 18.8, 22, 25 MHz) Marine specification (LR, ABS, DNV, GL)
Electromagnetic emission	Radiated emissions 40 dB μ V/m QP class A 10 m)30...230 MHz EN/IEC 55011 Radiated emissions 47 dB μ V/m QP class A 10 m)230...1000 MHz EN/IEC 55011
Immunity to microbreaks	10 ms
Ambient Air Temperature for Operation	14...131 °F (-10...55 °C) horizontal installation 14...95 °F (-10...35 °C) vertical installation
Ambient Air Temperature for Storage	-13...158 °F (-25...70 °C)
Relative humidity	10...95 %, without condensation in operation) 10...95 %, without condensation in storage)
IP Degree of Protection	IP20
Pollution degree	2
Operating altitude	0...6561.68 ft (0...2000 m)
Storage altitude	0.00...9842.52 ft (0...3000 m)
Vibration resistance	3.5 mm 5...8.4 Hz DIN rail 3 gn 8.4...150 Hz DIN rail
Shock resistance	15 gn 11 ms

Packing Units

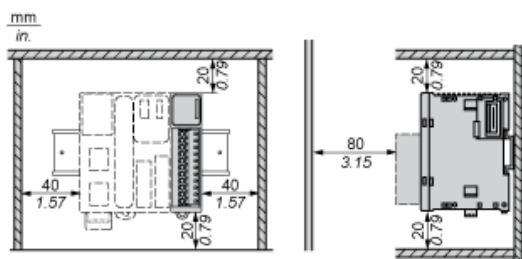
Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	2.95 in (7.5 cm)
Package 1 Width	4.13 in (10.5 cm)
Package 1 Length	4.92 in (12.5 cm)
Package 1 Weight	7.23 oz (205.0 g)
Unit Type of Package 2	S02
Number of Units in Package 2	9
Package 2 Height	5.91 in (15.0 cm)
Package 2 Width	11.81 in (30.0 cm)
Package 2 Length	15.75 in (40.0 cm)
Package 2 Weight	4.27 lb(US) (1.935 kg)

Dimensions

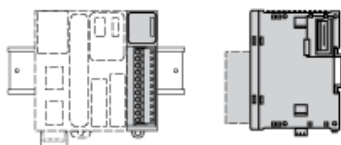


(*) 8.5 mm/0.33 in when the clamp is pulled out.

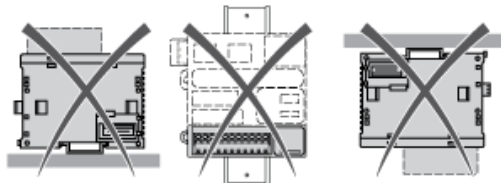
Spacing Requirements



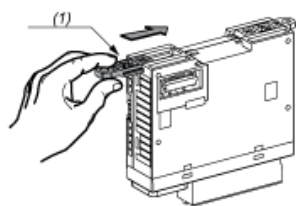
Mounting on a Rail



Incorrect Mounting

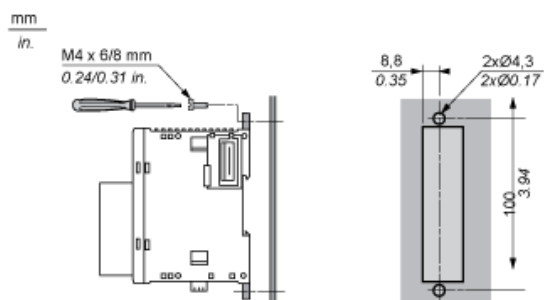


Mounting on a Panel Surface



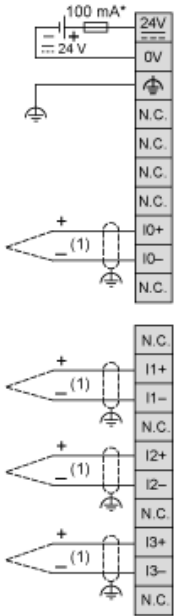
(1) Install a mounting strip

Mounting Hole Layout



Wiring Diagram

Analogue Input Module



- * Type T fuse
- (1) Electrically isolated or non isolated thermocouple